IN THE CLAIMS

A complete list of claims is presented below with amendments marked up:

Listing of the Claims:

1.-6. (Canceled).

7. (Currently amended) A method to determine relative movement of a pixel block from a first video frame to a second video frame, the method comprising:

performing a motion measurement on a plurality of motion search points that form a rectangular search region, each of the plurality of motion search points corresponding to a pixel block;

finding a minimal motion search point among the plurality of motion search points based on result of the motion measurement;

performing a refinement motion search on a sub-pixel level if the minimal motion search point is within an inner region of the rectangular search region; [[and]]

finding a motion vector corresponding to the relative movement of the pixel block from the first video frame to the second video frame;

repositioning the rectangular search region to be substantially centered on the minimal motion search point and partially overlapping a previous position of the rectangular search region while maintaining a size of the rectangular search region to be substantially the same if the minimal motion search point is along an edge or at a corner of the rectangular search region, the repositioned rectangular search region including a second plurality of motion search points; and

performing a motion measurement on the second plurality of motion search points.

8. (Canceled).

9. (Currently amended) The method of claim [[8]] 7, wherein the motion measurement on the second plurality of motion search points excludes the one or more of the plurality of motion search points falling within both the rectangular search region and the repositioned rectangular search region.

10. (Original) The method of claim 7, further comprising:

dividing the rectangular search region into a plurality of data units, each of the plurality of data units having substantially the same size and a distinct subset of the plurality of motion search points, wherein the motion measurement is performed in each of the plurality of data units one by one.

11. (Original) The method of claim 10, wherein the rectangular search region is a square search region having 16 motion search points.

12. (Original) The method of claim 11, wherein the square search region is divided into 4 data units, each of the 4 data units has 4 distinct motion search points.

13. (Previously presented) The method of claim 7, wherein performing the refinement motion search comprises shrinking the rectangular search region at the minimal point if the minimal motion search point is within the inner region of the rectangular search region.

14. (Original) The method of claim 7, further comprising performing a sub-pixel motion search around the minimal point if the minimal motion search point is within an inner region of the rectangular search region.

15. (Currently amended) A method to compress video data comprising:

defining a first video frame as a reference video frame;

performing a motion search on a second video frame relative to the reference video frame to determine a plurality of motion vectors of the second video frame relative to the reference video frame; and

reducing the video data to the reference video frame and the plurality of motion vectors of the second video frame, wherein the motion search includes

performing motion measurement on a plurality of motion search points that form a rectangular search region each of the plurality of motion search points corresponding to a pixel block;

finding a minimal motion search point among the plurality of motion search points based on result of the motion measurement;

performing a refinement motion search on a sub-pixel level if the minimal motion search point is within an inner region of the rectangular search region; [[and]]

finding a motion vector corresponding to the relative movement of the pixel block from the first video frame to the second video frame;

repositioning the rectangular search region to be substantially centered on the minimal motion search point and partially overlapping a previous position of the rectangular search region while maintaining a size of the rectangular search region to be substantially the

same if the minimal motion search point is along an edge or at a corner of the rectangular search region, the repositioned rectangular search region including a second plurality of motion search points; and

performing a motion measurement on the second plurality of motion search points.

16. (Canceled).

17. (Currently amended) The method of claim [[16]] 15, wherein the motion measurement on the second plurality of motion search points excludes the one or more of the plurality of motion search points falling within both the rectangular search region and the repositioned rectangular search region.

18. (Original) The method of claim 15, wherein performing the motion search further comprises:

dividing the rectangular search region into a plurality of data units, each of the plurality of data units having substantially the same size and a distinct subset of the plurality of motion search points, wherein the motion measurement is performed in each of the plurality of data units one by one.

19. (Currently amended) A computer-readable medium encoded with a computer program having computer executable instructions for causing a processor to perform operations to determine relative movement of a pixel block from a first video frame to a second video frame, the operations comprising:

performing a motion measurement on a plurality of motion search points that forms a rectangular search region, each of the plurality of motion search points corresponding to a pixel block;

finding a minimal motion search point among the plurality of motion search points based on result of the motion measurement;

performing a refinement motion search on a sub-pixel level if the minimal motion search point is within an inner region of the rectangular search region; [[and]]

finding a motion vector corresponding to the relative movement of the pixel block from the first video frame to the second video frame;

repositioning the rectangular search region to be substantially centered on the minimal motion search point and partially overlapping a previous position of the rectangular search region while maintaining a size of the rectangular search region to be substantially the same if the minimal motion search point is along an edge or at a corner of the rectangular search region, the repositioned rectangular search region including a second plurality of motion search points; and

performing a motion measurement on the second plurality of motion search points.

20. (Canceled).

21. (Currently amended) The computer-readable medium of claim [[20]] 19, wherein the motion measurement on the second plurality of motion search points excludes the one or more of the plurality of motion search points falling within both the rectangular search region and the repositioned rectangular search region.

22. (Previously presented) The computer-readable medium of claim 19, wherein the operations further comprise:

dividing the rectangular search region into a plurality of data units, each of the plurality of data units having substantially the same size and a distinct subset of the plurality of motion search points, wherein the motion measurement is performed in each of the plurality of data units one by one.

23. (Previously presented) The computer-readable medium of claim 22, wherein the rectangular search region is a square search region having 16 motion search points.

24. (Previously presented) The computer-readable medium of claim 23, wherein the square search region is divided into 4 data units, each of the 4 data units has 4 distinct motion search points.

25. (Currently amended) A system comprising:

a dynamic random access memory (DRAM) device;

a memory controller coupled to the DRAM device; and

a parallel processor chip coupled to the memory controller, the parallel processor chip comprising

a plurality of registers defining a register file; and

a parallel processor coupled to the plurality of registers, wherein the parallel processor is operable to perform operations to determine relative movement of a pixel block from a first video frame to a second video frame, the operations comprising:

performing a motion measurement on a plurality of motion search points that form a rectangular search region, each of the plurality of motion search points corresponding to a pixel block;

finding a minimal motion search point among the plurality of motion search points based on result of the motion measurement;

performing a refinement motion search on a sub-pixel level if the minimal motion search point is within an inner region of the rectangular search region; [[and]]

finding a motion vector corresponding to the relative movement of the pixel block from the first video frame to the second video frame;

repositioning the rectangular search region to be substantially centered on the minimal motion search point and partially overlapping a previous position of the rectangular search region while maintaining a size of the rectangular search region to be substantially the same if the minimal motion search point is along an edge or at a corner of the rectangular search region, the repositioned rectangular search region including a second plurality of motion search points; and

performing a motion measurement on the second plurality of motion search points.

26. (Canceled).

27. (Currently amended) The system of claim [[26]] 25, wherein the motion measurement on the second plurality of motion search points excludes the one or more of the

plurality of motion search points falling within both the rectangular search region and the repositioned rectangular search region.

28. (Original) The system of claim 25, wherein the parallel processor loads a plurality of data elements into a rectangular region within the register file, the rectangular region corresponding to the rectangular search region.

29. (Original) The system of claim 25, further comprising a microprocessor coupled to the memory controller.